Docket No: K-0368 PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of	Confirmation No.: 9460
Sang Jun CHOI	Group Art Unit: 2616
Serial No.: 10/026,539	Examiner: Warner WONG
Filed: December 27, 2001	**Customer No.: 34610**

For: APPARATUS AND METHOD OF TRANSMITTING ATM CELLS IN AN ATM NETWORK BASED MOBILE COMMUNICATION SYSTEM

RESPONSE TO NOTICE OF NON-COMPLIANT APPEAL BRIEF

U.S. Patent and Trademark Office
Customer Service Window, Mail Stop Appeal Briefs-Patents
Randolph Building
401 Dulany Street
Alexandria, Virginia 22314

Sir:

In response to the Notice of Non-Compliant Appeal Brief dated March 18, 2008, the Grounds of Rejection to be Reviewed on Appeal previously submitted in the March 12, 2008 Appeal Brief has been changed from 35 U.S.C. §102(e) to 35 U.S.C. §103(a). As required under 37 C.F.R.§1.121(h), the Appeal Brief is attached in its entirety at the end of this reply.

Should the Examiner have any questions regarding the above-identified application, the Examiner is invited to contact David C. Oren at the telephone number listed below.

Please charge any shortage in fees due in connection with the filing of this, concurrent and future replies, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,
KED & ASSOCIATES, LLP

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Attachment: Appeal Brief

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Date: March 20, 2008

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF APPEALS AND INTERFERENCE

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APPEAL BRIEF

U.S. Patent and Trademark Office
Customer Window, Mail Stop Appeal Brief-Patents
Randolph Building
401 Dulany Street
Alexandria, Virginia 223134

Sir:

This appeal is taken from the rejection of claims as set forth in the Office Action dated August 10, 2007 (hereafter the Office Action). In accordance with 37 C.F.R. §41.37, appellant addresses the following items.

REAL PARTY IN INTEREST

The real party in interest is the assignee, LG Electronics Inc. The assignment document is recorded at Reel 012411 and Frame 0554.

RELATED APPEALS AND INTERFERENCES

There are no known related appeals and interferences.

STATUS OF THE CLAIMS

This is an appeal from the final rejection dated August 10, 2007 of claims 1-4, 6, 8-9, 11, 15-16 and 20. No other claims are pending. All pending claims 1-4, 6, 8-9, 11, 15-16 and 20 are rejected. Claims 5, 7, 10, 12-14, 17-19 and 21 have been canceled.

STATUS OF AMENDMENTS

All Amendments filed in this application have been entered. As stated in the Advisory Action dated January 8, 2008, the amendments filed December 10, 2007 have been entered. A copy of appealed claims 1-4, 6, 8-9, 11, 15-16 and 20 appears in the attached Claims Appendix.

SUMMARY OF THE CLAIMED SUBJECT MATTER

As stated in 37 C.F.R §41.37(c)(v), appellant is providing the following explanation of each of the independent claims 1, 6, 11 and 16 involved in this appeal. This explanation refers to the specification and drawings. The following is merely an example summary and is not intended to be a discussion of the full and entire scope of the claims. Other interpretations, configurations and embodiments are also within the scope of the pending claims.

Independent Claim 1

The present specification discloses an apparatus for transmitting asynchronous transfer mode (ATM) adaptation layer-2 (AAL2) type ATM cells (AAL2 cells). See, for example, paragraphs [32]-[36] and FIG. 1.

The apparatus includes an AAL transmitter to generate one or more AAL cells by multiplexing N AAL packets, generated by adding an AAL packet header to an i^{th} data subset of an original user data set. See, for example, paragraph [39] and FIG. 1 showing internal AAL transmitter 111. Each of the one or more AAL cells includes an ATM header and a Start of Packet field to indicate a starting location of an i^{th} AAL packet. See, for example, paragraph [40] and FIG. 3. The AAL transmitter resides in a channel card, and the channel card further includes an AAL receiver and a CPU. See, for example, paragraph [33] and FIG. 1 showing channel card having internal AAL receiver 112 and CPU 113.

The apparatus also includes an AAL receiver to receive the one or more AAL cells generated by the AAL transmitter and to restore the original user data set by demultiplexing the N AAL packets included in the one or more AAL cells, the AAL receiver residing in an AAL2 processor. See, for example, paragraph [45] and FIG. 2 showing internal AAL receiver 126 within an AAL processor.

The apparatus further includes an AAL2 transmitter to receive the restored original user data set from the AAL receiver and to generate one or more of the AAL2 cells by multiplexing M common part sublayer (CPS) packets, generated by adding a CPS packet header to a j^{th} data

subset of the restored original user data set, the AAL2 transmitter residing in the AAL2 processor. See, for example, paragraph [45] and FIG. 2 showing AAL2 transmitter 123 within an AAL processor.

Independent Claim 6

The present specification discloses an apparatus for receiving asynchronous transfer mode (ATM) adaptation layer-2 (AAL2) type ATM cells (AAL2 cells). See, for example, paragraphs [32]-[36] and FIG. 1.

The apparatus includes an AAL2 receiver to receive one or more of the AAL2 cells, containing common part sublayer (CPS) packets corresponding to an original user data set, and to restore the original user data set by demultiplexing the CPS packets, the AAL2 receiver residing in an AAL2 processor. See, for example, paragraph [46] and FIG. 2 showing AAL2 receiver 214 within an AAL processor.

The apparatus also includes an AAL transmitter to receive the restored original user data set from the AAL2 receiver and to generate one or more AAL cells by multiplexing N AAL packets, generated by adding an AAL packet header to an i^{th} data subset of the restored original user data set, the AAL2 receiver residing in an AAL2 processor. See, for example, paragraph [46] and FIG. 2 showing internal AAL transmitter 215 within an AAL processor. Each of the one or more AAL cells includes an ATM header and a Start of Packet field to indicate a starting location of an i^{th} AAL packet. See, for example, paragraph [40] and FIG. 3.

Further, the apparatus includes an AAL receiver to receive the one or more AAL cells from the AAL transmitter and to restore the original user data set by demultiplexing the N AAL packets, the AAL receiver residing in a selector, the selector further including a second AAL transmitter and a CPU. See, for example, paragraphs [34] and [46]-[47] and FIG. 1 showing selector 230 having an internal AAL receiver 232, an internal AAL transmitter 231 and a CPU 233.

Independent Claim 11

The present specification discloses a method for transmitting asynchronous transfer mode (ATM) adaptation layer-2 (AAL2) type ATM cells (AAL2 cells). See, for example, paragraphs [32]-[36] and FIGs. 1 and 5A.

The method includes generating N AAL packets by adding an AAL packet header to an i^{th} data subset of an original user data set. See, for example, paragraph [39] and FIG. 5A, block S11. The AAL packet header including a sequence number of the i^{th} data subset, a routing tag field identifying the original user data set, a length indicator field indicating a length of the i^{th} data subset, and a C-FLAG field indicating whether the i^{th} data subset represents an N^{th} data subset of the original user data. See, for example, paragraphs [42]-[44] and FIG. 4. The present specification also describes that the generating being performed in an AAL transmitter residing in a channel card, and the channel card further including an AAL receiver and a CPU. See, for

example, paragraph [39] and FIG. 1 showing channel card 110 having an internal AAL transmitter 111, an internal AAL receiver 112 and a CPU 113.

The method also includes generating one or more AAL cells by multiplexing the generated N AAL packets in the AAL transmitter of the channel card. See, for example, paragraph [39] and FIG. 5A.

The method includes receiving the original user data set at an AAL receiver. See, for example, paragraphs [45]-[47].

The method also includes restoring the received original user data set by demultiplexing the N AAL packets included in the AAL cells, the restoring being performed by the AAL receiver residing in an AAL2 processor. See, for example, paragraph [45], FIG. 2 showing internal AAL receiver 126 within an AAL processor and FIG. 5A, block S13.

Further, the method includes receiving the restored original user data set at an AAL2 transmitter. See, for example, paragraph [46]

The method additionally includes generating M common part sublayer (CPS) packets by adding a CPS packet header to a j^{th} data subset of the restored original user data set by the AAL2 transmitter residing in the AAL2 processor. See, for example, paragraph [45], FIG. 2 showing AAL2 transmitter 123 within an AAL processor and FIG. 5A, block S14.

Still further, the method includes generating one or more of the AAL2 cells by multiplexing the M CPS packets by the AAL2 transmitter residing in the AAL2 processor. See,

for example, paragraph [45], FIG. 2 showing AAL2 transmitter 123 within an AAL processor and FIG. 5A, block S15.

The method also includes transmitting the AAL2 cells to a receiving system through a connection line. See, for example, paragraph [21] and FIG. 5A, block S16.

Independent Claim 16

The present specification discloses a method of receiving asynchronous transfer mode (ATM) adaptation layer 2 (AAL2) type ATM cells (AAL2 cells). See, for example, paragraphs [32]-[36] and FIGs. 1 and 5B.

The method includes receiving one or more AAL2 cells containing common part sublayer (CPS) packets corresponding to an original user data set, the receiving being performed in an AAL2 receiver residing in an AAL2 processor. See, for example, paragraph [46], FIG. 2 showing AAL2 receiver 214 within AAL processor and FIG. 5B, block S21.

The method includes restoring the original user data set by demultiplexing the CPS packets by the receiver in the AAL2 processor. See, for example, paragraph [46] and FIG. 5B, block S22.

The method includes receiving the restored original user data set at an AAL transmitter. See, for example, paragraph [46].

The method additionally includes generating N AAL packets by adding an AAL packet header to an i^{th} data subset of the restored original user data set, the generating being performed

by the AAL transmitter residing in the AAL2 processor. See, for example, paragraph [46], FIG. 2 showing internal AAL transmitter 215 within an AAL processor and FIG. 5B, block S23. The AAL packet header including a sequence number of the i^{th} data subset, a routing tag field identifying the original user data set, a length indicator field indicating a length of the i^{th} data subset, and a C-FLAG field indicating whether the i^{th} data subset represents the N^{th} data subset of the restored original user data set. See, for example, paragraphs [42]-[44] and FIG. 4.

Additionally, the method includes generating one or more AAL cells by multiplexing the N AAL packets by the AAL transmitter residing in the AAL2 processor, receiving the one or more AAL cells at an AAL receiver. See, for example, paragraph [46] and FIG. 2 showing internal AAL transmitter 215 within an AAL processor and FIG. 5B, block S24.

The method further includes restoring the original user data set by demultiplexing the N AAL packets included in the one or more AAL cells, the restoring being performed by the AAL receiver residing in a selector, the selector further including a second AAL transmitter and a CPU. See, for example, paragraphs [34] and [46]-[47], FIG. 1 showing selector 230 having an internal AAL receiver 232, an internal AAL transmitter 231 and a CPU 233 and FIG. 5B, block S25.

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1-3, 6, 8, 9, 11, 15-16 and 20 stand rejected under 35 U.S.C. §103(a) over U.S. Patent 6,804,246 to Petersen et al. (hereafter Petersen).

Claim 4 stands rejected under 35 U.S.C. §103(a) over Petersen in view of U.S. Patent 6,628,641 to Strawczynski.

ARGUMENT

The present application contains four independent claims, namely independent claims 1, 6, 11 and 16. These claims contain different features as may be evidenced by the specifically claimed features and/or as may be pointed out below. For ease of illustration and discussion, similar types of claims (and/or claim features) may be discussed with respect to each other. This is not an admission that the claims are the same or that they stand or fall together. Rather, this is an attempt to narrow the number of issues and to limit the number of arguments. While arguments may be similar for different claims, it should be understood that differently claimed features are expressly used.

Appellant is providing arguments below to show that the applied references do not teach or suggest the features of each of the respective claims. Each of independent claims 1, 6, 11 and 16 is believed to define patentable subject matter as discussed below. Each of the dependent claims depends from at least one of the independent claims and therefore defines patentable subject matter at least for this additional reason. In addition, the dependent claims recite features that further and independently distinguish over the applied references.

Appellant is providing each of the independent claims under a separate heading. Each of respective dependent claims is provided under a separate subheading for the corresponding independent claim.

Brief Discussion of Differences Between Petersen and the Present Application

Petersen's FIG. 4 shows demultiplexing of an ATM cell having an AAL2 protocol (top) into an ATM cell having AAL2' protocol (bottom). Petersen relates to an AAL2 CPS packet inserted into a payload of an AAL' cell.

A packet length of a vocoded voice may be 20 bytes. When the packet is transmitted via an ATM Cell payload (48 bytes), the rest of the packet length may become useless. Efficiency of a relay line may be high by transmitting via relay line after multiplexing AAL2 CPS-packets of multi users to the AAL2 cell payload. A CPS packet may include a Header (of CID, LI, UUI and HEC) and a Payload (storing User Data). After the AAL2 cell is transmitted to a base station or a base station controller, the cell may be de-multiplexed and the multi user's CPS packets may be separated (i.e., demultiplexed) from the payload of the AAL2 cell. The separated CPS packets may be transmitted to other boards of the base station according to their destination.

Petersen and the present application differ on how to change a separated CPS packet into a kind of cell to transmit to other boards. For example, Peterson transmits a separated multi user's CPS-Packet via a payload of an internal AAL2' cell without a changing process. In this technique, the payload of the AAL2' cell not loading the CPS packet may become useless. Therefore, it may not be able to handle a long packet, such as video.

On the other hand, in the present application, de-multiplexed CPS packets that have a same destination may be transmitted together to other boards. After separating the payload

from the CPS packet, the separated payloads may be gathered to the payload of an Internal AAL packet and transmitted together. The AAL packet may include an AAL packet header that is attached to the payload of the internal AAL packet. Then, the AAL packet that has the same destination may be multiplexed to the payload of the AAL2' cell and transmitted to the other board of the base station.

The AAL packet header may include fields of LI (Packet data length of payload), C ("1" may represent sequential data and "0" may represent non-sequential data), and SEQ-NO (Sequence Number of sequential data). See paragraphs [42]-[44] and FIG. 4 of the present application.

The AAL2' cell of the present application may be an internal ATM cell for multiplexing the AAL packet and may have a different cell structure than Petersen. For example, the AAL2' cell may include 1 byte of a Start of Packet (SOP) and a payload. See, for example, paragraph [40] of the present specification describing a SOP field which indicates a starting location of each internal AAL packet within the ATM payload.

The present application and Petersen also differ on transmitting an AAL2 CPS packet to another board, wherein the AAL2 CPS packet is de-multiplexed to AAL2 cell which is transmitted from the relay line. As will be discussed below, the present application contains features (such as in claims) regarding structures of an AAL2' cell and an AAL packet and a procedure of transmitting the cell.

Independent Claim 1

Independent claim 1 recites an AAL transmitter to generate one or more AAL cells by multiplexing N AAL packets, generated by adding an AAL packet header to an i^{th} data subset of an original user data set, wherein each of the one or more AAL cells includes an ATM header and a Start of Packet field to indicate a starting location of an i^{th} AAL packet, the AAL transmitter residing in a channel card, the channel card further including an AAL receiver and a CPU. Independent claim 1 also recites an AAL receiver to receive the one or more AAL cells generated by the AAL transmitter and to restore the original user data set by demultiplexing the N AAL packets included in the one or more AAL cells, the AAL receiver residing in an AAL2 processor. Still further, independent claim 1 recites an AAL2 transmitter to receive the restored original user data set from the AAL receiver and to generate one or more of the AAL2 cells by multiplexing M common part sublayer (CPS) packets, generated by adding a CPS packet header to a j^{th} data subset of the restored original user data set, the AAL2 transmitter residing in the AAL2 processor.

The applied references do not teach or suggest at least these features of independent claim 1. More specifically, the Office Action (on page 2) appears to reference Petersen's TX/RX 42-35 (FIG. 7A) as corresponding to the claimed AAL transmitter and to reference Petersen's FIG. 6B as showing a combined AAL2' cell. However, Petersen does not teach or suggest an AAL transmitter to generate one or more AAL cells by multiplexing N AAL packets, generated by adding an AAL packet header to an i^{th} data subset of an original user data set, wherein each of

the one or more AAL cells includes an ATM header and a Start of Packet field to indicate a starting location of an i^{th} AAL packet, as recited in independent claim 1. Stated differently, Peterson does not suggest the claimed combination of multiplexing and a Start of Packet field (for each of the AAL cells).

As shown in FIG. 7A, Petersen's TX/RX 42-35 provides an AAL2' signal. Further, as disclosed in col. 3, lines 8-9 in a first mode of the AAL2' protocol, only one AAL2 packet is carried for an ATM cell payload , such as shown in Petersen's FIG. 6A. On the other hand, in a second mode (FIG. 6B), the payload may contain more than one AAL2 packet. However, Petersen is very clear that the payload in FIG. 6A and FIG. 6B expressly do not include a start field. See col. 9, lines 44-46 and 56-58. Thus, Petersen does not teach or suggest that each of the one or more AAL cells includes an ATM header and a Start of Packet field to indicate a starting location of an i^{th} AAL packet.

The Office Action dated April 11, 2007 (on page 8) references Petersen's FIG. 6B as showing combining (multiplexing) AAL2 packets into an AAL2' protocol cell. The April 11 Office Action appears to state that this corresponds to the claimed multiplexing. However, the cell shown in FIG. 6B expressly does not include a start of packet field. Thus, FIG. 6B does not suggest an AAL transmitter to generate one or more AAL cells by multiplexing N AAL packets, generated by adding an AAL packet header to an i^{th} data subset of an original user data set in combination with each of the one or more AAL cells includes an ATM header and a Start of Packet field to indicate a starting location of an i^{th} AAL packet, as recited in independent claim 1.

In other words, Petersen does not suggest the features of "multiplexing" in combination with "a start of packet field."

The Advisory Action (page 2) references Petersen's FIG. 4 as showing a generated AAL2' cell ($20_{4\text{-}1}$) having a header 22_4 and a start field 24_1. However, the cell $20_{4\text{-}1}$ shown in FIG. 4 is based on demultiplexing an ATM cell with AAL2. See col. 9, lines 65-67. The cells shown in Petersen's FIG. 4 are not a result of multiplexing but rather are demultiplexed cells.

When discussing previous dependent claim 5 relating to a Start of Packet field, the Office Action (on page 4) cites Petersen's FIG. 3 as showing a start field 24. However, the start field 24 shown in FIG. 3 is not for use in the cells of FIGs. 6A and 6B. Additionally, Petersen's start field 24 does not suggest a start field (for each of the one or more AAL cells that is generated by multiplexing N AAL packets. There is no suggestion that FIG. 3's start field 24 is provided for each AAL cell (that is generated based on multiplexing AAL packets).

Petersen's TX/RX 42-35 also does not generate one or more AAL cells by multiplexing N AAL packets. The claimed multiplexing involves more than one AAL packet. Furthermore, Petersen's TX/RX 42-35 does not teach or suggest an AAL transmitter to generate one or more AAL cells (generated by adding an AAL packet header to an i^{th} data subset of an original user data set).

For at least the reasons set forth above, Petersen does not teach or suggest the claimed AAL transmitter to generate one or more AAL cells by multiplexing N AAL packets as well as

each of the one or more AAL cells includes an ATM header and a Start of Packet field to indicate a starting location of an i^{th} AAL packet.

Petersen also does not teach or suggest an AAL receiver to receive the one or more AAL cells generated by the AAL transmitter and to restore the original user data set by demultiplexing the N AAL packets included in the one or more AAL cells. The Office Action (on page 3) cites Petersen's CHU 42-32 as corresponding to the claimed AAL receiver. However, Petersen's CHU 42-32 does not teach or suggest an AAL receiver to receive the one or more AAL cells generated by the AAL transmitter and to restore the original user data set by demultiplexing the N AAL packets included in the one or more AAL cells. Petersen's CHU 42-32 does not demultiplex AAL packets included in an AAL cell. Petersen also does not suggest restoring the original user data.

Even further, Petersen does not teach or suggest an AAL2 transmitter to receive the restored original user data set from the AAL receiver and to generate one or more of the AAL2 cells by multiplexing M CPS packets, generated by adding a CPS packet header to a j^{th} data subset of the restored original user data set. The Office Action (on page 3) cites Petersen's CHU 42-32 as corresponding to the claimed AAL2 transmitter. However, Petersen's CHU 42-32 does not teach or suggest an AAL2 transmitter to receive the restored original user data set from the AAL receiver and to generate one or more of the AAL2 cells. Petersen's CHU 42-32 does not multiplex CPS packets. Petersen's CHU 42-32 also does not receive the restored original user data set.

The Advisory Action also states that Petersen discloses a single wireless short packet's content is sent by a mobile and is received by a BS. This does not suggest the claimed AAL2 transmitter to receive the restored original user data set from the AAL receiver and to generate one or more of the AAL2 cells by multiplexing M CPS packets, generated by adding a CPS packet header to a j^{th} data subset of the restored original user data set.

Still further, Petersen does not teach or suggest the claimed features for multiplexing N AAL packets, demultiplexing the N AAL packets and multiplexing M CPS packets (in an apparatus for transmitting). Petersen merely discloses that AAL2' channels (each on an individual ATM-VCC) may be multiplexed into one ATM-VCC using the standard AAL2 protocol. Therefore, while Petersen discloses multiplexing of channels, Petersen does not teach or suggest the claimed multiplexing of packets (and/or demultiplexing of packets) as recited in independent claim 1.

For at least the reasons set forth above, Petersen does not teach or suggest all the features of independent claim 1. Strawczynski does not teach or suggest the features of independent claim 1 missing from Petersen. Thus, independent claim 1 defines patentable subject matter.

Dependent Claim 2

Dependent claim 2 depends from independent claim 1 and therefore defines patentable subject matter at least for this reason. However, dependent claim 2 contains additional features such that dependent claim 2 does not stand or fall together with independent claim 1. For

example, dependent claim 2 recites that the AAL packet header includes a sequence number of the i^{th} data subset.

The Office Action cites Petersen's FIG. 3A for these features. However, this does not suggest the features of the AAL packet header in combination with the claimed multiplexing AAL packets, generated by adding the AAL packet header to an ith data subset of an original user data set. Petersen does not teach or suggest at least these features of dependent claim 2. Thus, dependent claim 2 defines patentable subject matter at least for these additional reasons.

Dependent Claim 3

Dependent claim 3 depends from independent claim 1 and dependent claim 2 and therefore defines patentable subject matter at least for this reason. However, dependent claim 3 contains additional features such that dependent claim 3 does not stand or fall together with independent claim 1 and dependent claim 2. For example, dependent claim 3 recites that the AAL packet header further includes a routing tag field to identify the original user data set and a length indicator field to indicate the length of the i^{th} data subset.

The Office Action cites Petersen's FIG. 2 for these features. However, this does not suggest the features of the AAL packet header in combination with the multiplexing AAL packets, generated by adding the AAL packet header (including a routing tag field and a length indicator field) to an ith data subset of an original user data set. Petersen does not teach or suggest at least these features of dependent claim 3. Thus, dependent claim 3 defines patentable subject matter at least for these additional reasons.

Independent Claim 6

Independent claim 6 recites an AAL2 receiver to receive one or more of the AAL2 cells, containing common part sublayer (CPS) packets corresponding to an original user data set, and to restore the original user data set by demultiplexing the CPS packets. Independent claim 6 further recites an AAL transmitter to receive the restored original user data set from the AAL2 receiver and to generate one or more AAL cells by multiplexing N AAL packets, generated by adding an AAL packet header to an i^{th} data subset of the restored original user data set, wherein each of the one or more AAL cells includes an ATM header and a Start of Packet field to indicate a starting location of an i^{th} AAL packet. Independent claim 6 also recites an AAL receiver to receive the one or more AAL cells from the AAL transmitter and to restore the original user data set by demultiplexing the N AAL packets, the AAL receiver residing in a selector, the selector further including a second AAL transmitter and a CPU.

For at least similar reasons as set forth above, Petersen does not teach or suggest at least these features of independent claim 6. More specifically, Petersen does not teach or suggest an AAL transmitter to receive the restored original user data set from the AAL2 receiver and to generate one or more AAL cells by multiplexing N AAL packets, generated by adding an AAL packet header to an i^{th} data subset of the restored original user data set, wherein each of the one or more AAL cells includes an ATM header and a Start of Packet field to indicate a starting location of an i^{th} AAL packet. Stated differently, Petersen does not suggest the claimed features of multiplexing and each ALL cell (generated by multiplexing) includes a Start of Packet field.

The Office Action (on page 7) cites Petersen's FIG. 3A and col. 2, lines 27-28 as teaching an ATM header and Start of Packet field. However, Petersen's FIG. 3A does not correspond to the structure of the specific cells/packets that are utilized in the sections of Petersen that are cited in the Office Action. For example, Petersen's FIG. 6B expressly does not include a start of packet field. See col. 9, lines 55-58.

Petersen does not teach or suggest an AAL transmitter to receive the restored original user data set from the AAL2 receiver and to generate one or more AAL cells where each of the AAL cells includes an ATM header and a Start of Packet field.

For at least the reasons set forth above, Petersen does not teach or suggest all the features of independent claim 6. Strawczynski does not teach or suggest the features of independent claim 6 missing from Petersen. Independent claim 6 therefore defines patentable subject matter.

Dependent Claim 8

Dependent claim 8 depends from independent claim 6 and therefore defines patentable subject matter at least for this reason. However, dependent claim 8 contains additional features such that dependent claim 8 does not stand or fall together with independent claim 6. For example, dependent claim 8 recites that the AAL packet header includes a sequence number of the i^{th} data subset, a routing tag field identifying the original user data set, and a length indicator field indicating the length of the i^{th} data subset.

The Office Action cites Petersen's FIGs. 2 and 3A for these features. However, this does not suggest the features of the AAL packet header in combination with the claimed multiplexing

AAL packets, generated by adding the AAL packet header (including the sequence number field, routing tag field and length indicator field) to an ith data subset of the restored original user data set. Petersen does not teach or suggest at least these features of dependent claim 8. Thus, dependent claim 8 defines patentable subject matter at least for these additional reasons.

Dependent Claim 9

Dependent claim 9 depends from independent claim 6 and dependent claim 8 and therefore defines patentable subject matter at least for this reason. However, dependent claim 9 contains additional features such that dependent claim 9 does not stand or fall together with independent claim 6 and dependent claim 8. For example, dependent claim 9 recites that the AAL packet header further includes a C-FLAG field to indicate whether the i^{th} data subset represents the N^{th} data subset of the restored original user data set.

The Office Action cites Petersen's FIG. 3A for these features. However, this does not suggest the features of the AAL packet header in combination with the multiplexing AAL packets, generated by adding the AAL packet header (including the C-FLAG field) to an ith data subset of the restored original user data set. Petersen does not teach or suggest at least these features of dependent claim 9. Thus, dependent claim 9 defines patentable subject matter at least for these additional reasons.

Independent Claim 11

Independent claim 11 recites generating N AAL packets by adding an AAL packet header to an i^{th} data subset of an original user data set, the AAL packet header including a sequence number of the i^{th} data subset, a routing tag field identifying the original user data set, a length indicator field indicating a length of the i^{th} data subset, and a C-FLAG field indicating whether the i^{th} data subset represents an N^{th} data subset of the original user data. Independent claim 11 also recites generating one or more AAL cells by multiplexing the generated N AAL packets in the AAL transmitter of the channel card, receiving the original user data set at an AAL receiver, and restoring the received original user data set by demultiplexing the N AAL packets included in the AAL cells, the restoring being performed by the AAL receiver residing in an AAL2 processor. Still further, independent claim 11 recites receiving the restored original user data set at an AAL2 transmitter, generating M common part sublayer (CPS) packets by adding a CPS packet header to a j^{th} data subset of the restored original user data set by the AAL2 transmitter residing in the AAL2 processor, generating one or more of the AAL2 cells by multiplexing the M CPS packets by the AAL2 transmitter residing in the AAL2 processor, and transmitting the AAL2 cells to a receiving system through a connection.

For at least similar reasons as set forth above, the applied references do not teach or suggest at least these features of independent claim 11. More specifically, Petersen does not teach or suggest generating N AAL packets by adding an AAL packet header to an i^{th} data subset of an original user data set, the AAL packet header including a sequence number of the i^{th} data

subset, a routing tag field identifying the original user data set, a length indicator field indicating a length of the i^{th} data subset, and a C-FLAG field indicating whether the i^{th} data subset represents an N^{th} data subset of the original user data set.

The Office Action (on page 4) cites Petersen's FIG. 3A as teaching the claimed sequence number and the Office Action cites Petersen's FIG. 2 as teaching the claimed routing tag field and length indicator field. However, Petersen's FIGs 2 and. 3A do not correspond to the features provided within the other cited sections of Petersen. Petersen's FIGs. 2 and 3A do not represent the structure of cells/packets disclosed in the other sections of Petersen that are cited in the Office Action. Thus, Petersen does not teach or suggest these features as alleged in the Office Action. The citation to Petersen's FIGs. 2 and 3A is improper. Further, the citations to FIGs. 2 and 3A do not relate to the specifically claimed features relating to multiplexing and demultiplexing. The mere disclosure of a sequence number, a routing tag field and a length indicator field does not take into account the claimed features of multiplexing and demultiplexing.

The Office Action (on pages 7-8) also cites Strawczynski's col. 7, lines 62-65 as teaching the claimed C-FLAG field. However, the cited section merely relates to a PTI to indicate a last cell of a frame 650. However, this does not teach or suggest an AAL packet header that includes a C-FLAG field indicating whether the i^{th} data subset represents an N^{th} data subset of the original user data set. Further, the citations to Strawczynski does not relate to the specifically

claimed features relating to multiplexing and demultiplexing. The mere disclosure of a C-FLAG field does not take into account the claimed features of multiplexing and demultiplexing.

Further, there is no suggestion in the prior art to provide the features of Strawczynski in Petersen. Stated differently, there is no suggestion of how Strawczynski can be combined with Petersen so as to obtain all the features of independent claim 11.

Petersen does not teach or suggest generating one or more AAL cells by multiplexing the generated N AAL packets in the AAL transmitter of a channel card, restoring the received original user data set by demultiplexing the N AAL packets included in the AAL cells, and generating one or more of the AAL2 cells by multiplexing the M CPS packets by the AAL2 transmitter residing in the AAL2 processor. The Office Action's discussion of Petersen on pages 2-3 does not teach or suggest these specific multiplexing, demultiplexing or multiplexing followed by the claimed transmitting the AAL2 cells to a receiving system through a connection line.

For at least the reasons set forth above, Petersen and Strawczynski do not teach or suggest all the features of independent claim 11. Independent claim 11 therefore defines patentable subject matter.

Dependent Claim 15

Dependent claim 15 depends from independent claim 11 and therefore defines patentable subject matter at least for this reason. However, dependent claim 15 contains additional features such that dependent claim 15 does not stand or fall together with independent claim 11. For

example, dependent claim 15 recites that each of the one or more AAL cells includes an ATM header and a Start of Packet field, which indicates a starting location of an i^{th} AAL packet.

The Office Action cites Petersen's FIG. 3A for these features. However, this does not suggest the features of an AAL cell including a Start of Packet field in combination with the generating the AAL cells (including the Start of Packet field) by multiplexing. Petersen does not teach or suggest at least these features of dependent claim 15. Thus, dependent claim 15 defines patentable subject matter at least for these additional reasons.

Independent Claim 16

Independent claim 16 recites receiving one or more AAL2 cells containing common part sublayer (CPS) packets corresponding to an original user data set, the receiving being performed in an AAL2 receiver residing in an AAL2 processor, restoring the original user data set by demultiplexing the CPS packets by the receiver in the AAL2 processor, and receiving the restored original user data set at an AAL transmitter. Independent claim 16 also recites generating N AAL packets by adding an AAL packet header to an ith data subset of the restored original user data set, the AAL packet header including a sequence number of the ith data subset, a routing tag field identifying the original user data set, a length indicator field indicating a length of the ith data subset, and a C-FLAG field indicating whether the ith data subset represents the Nth data subset of the restored original user data set, the generating being performed by the AAL transmitter residing in the AAL2 processor. Independent claim 16 also recites generating

one or more AAL cells by multiplexing the N AAL packets by the AAL transmitter residing in the AAL2 processor, receiving the one or more AAL cells at an AAL receiver, and restoring the original user data set by demultiplexing the N AAL packets included in the one or more AAL cells, the restoring being performed by the AAL receiver residing in a selector, the selector further including a second AAL transmitter and a CPU.

For at least similar reasons as set forth above, Petersen does not teach or suggest all the features of independent claim 16. More specifically, Petersen does not teach or suggest generating N AAL packets, wherein the AAL packet header includes a sequence number of the ith data subset, a routing tag field identifying the original user data set, a length indicator field indicating the length of the ith data subset, and a C-FLAG field that indicates whether the ith data subset represents the Nth data subset of the restored original user data set.

Still further, Petersen does not teach or suggest restoring the original user data set by demultiplexing the CPS packets, generating one or more AAL cells by multiplexing the N AAL packets by the AAL transmitter residing in the AAL2 processor, and restoring the original user data set by demultiplexing the N AAL packets included in the one or more AAL cells. The Office Action's discussion of Petersen on pages 5-6 does not teach or suggest these specific demultiplexing, multiplexing and demultiplexing.

For at least the reasons set forth above, Petersen and Strawczynski do not teach or suggest all the features of independent claim 16. Thus, independent claim 16 defines patentable subject matter.

Dependent Claim 20

Dependent claim 20 depends from independent claim 16 and therefore defines patentable subject matter at least for this reason. However, dependent claim 20 contains additional features such that dependent claim 20 does not stand or fall together with independent claim 16. For example, dependent claim 20 recites that each of the one or more AAL cells includes an ATM header and a Start of Packet field, which indicates a starting location of an i^{th} AAL packet.

The Office Action cites Petersen's FIG. 3A for these features. However, this does not suggest the features of the AAL cell includes a Start of Packet field in combination with the generating one or more cells by multiplexing N AAL packets. Petersen does not teach or suggest at least these features of dependent claim 20. Thus, dependent claim 20 defines patentable subject matter at least for these additional reasons.

CLAIMS APPENDIX

The attached Claims Appendix contains a copy of the claims involved in the appeal.

EVIDENCE APPENDIX

Appellant has not provided any evidence with this appeal and therefore an Evidence Appendix is not provided.

RELATED PROCEEDINGS APPENDIX

Appellant is not providing copies of related decisions and therefore a Related Proceeding Appendix is not provided.

CONCLUSION

It is respectfully submitted that the above arguments show that each of claims 1-4, 6, 8-9, 11, 15-16 and 20 are patentable over the applied references. Based at least on these reasons, it is respectfully submitted that each of claims 1-4, 6, 8-9, 11, 15-16 and 20 defines patentable subject matter. Appellant respectfully requests that the rejections of claims 1-4, 6, 8-9, 11, 15-16 and 20 set forth in the August 10, 2007 Office Action be withdrawn.

Respectfully submitted,
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Attachment: Claims Appendix

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CLAIMS APPENDIX

1. An apparatus for transmitting asynchronous transfer mode (ATM) adaptation layer-2 (AAL2) type ATM cells (AAL2 cells), comprising:

an AAL transmitter to generate one or more AAL cells by multiplexing N AAL packets, generated by adding an AAL packet header to an i^{th} data subset of an original user data set, wherein each of the one or more AAL cells includes an ATM header and a Start of Packet field to indicate a starting location of an i^{th} AAL packet, the AAL transmitter residing in a channel card, the channel card further including an AAL receiver and a CPU;

an AAL receiver to receive the one or more AAL cells generated by the AAL transmitter and to restore the original user data set by demultiplexing the N AAL packets included in the one or more AAL cells, the AAL receiver residing in an AAL2 processor; and

an AAL2 transmitter to receive the restored original user data set from the AAL receiver and to generate one or more of the AAL2 cells by multiplexing M common part sublayer (CPS) packets, generated by adding a CPS packet header to a j^{th} data subset of the restored original user data set, the AAL2 transmitter residing in the AAL2 processor,

wherein i, j, N, and M are positive integers, $1 \leq i \leq N$, and $1 \leq j \leq M$.

2. The apparatus of claim 1, wherein the AAL packet header includes a sequence number of the i^{th} data subset.

3. The apparatus of claim 2, wherein the AAL packet header further includes a routing tag field to identify the original user data set and a length indicator field to indicate the length of the i^{th} data subset.

4. The apparatus of claim 3, wherein the AAL packet header further includes a C-FLAG field to indicate whether the i^{th} data subset represents the N^{th} data subset of the original user data set.

6. An apparatus for receiving asynchronous transfer mode (ATM) adaptation layer-2 (AAL2) type ATM cells (AAL2 cells), comprising:

an AAL2 receiver to receive one or more of the AAL2 cells, containing common part sublayer (CPS) packets corresponding to an original user data set, and to restore the original user data set by demultiplexing the CPS packets, the AAL2 receiver residing in an AAL2 processor;

an AAL transmitter to receive the restored original user data set from the AAL2 receiver and to generate one or more AAL cells by multiplexing N AAL packets, generated by adding an AAL packet header to an i^{th} data subset of the restored original user data set, wherein each of the one or more AAL cells includes an ATM header and a Start of Packet field to indicate a starting location of an i^{th} AAL packet, the AAL transmitter residing in the AAL2 processor; and

an AAL receiver to receive the one or more AAL cells from the AAL transmitter and to restore the original user data set by demultiplexing the N AAL packets, the AAL receiver residing in a selector, the selector further including a second AAL transmitter and a CPU,

wherein

i and N are positive integers and $1 \leq i \leq N$.

8. The apparatus of claim 6, wherein the AAL packet header includes a sequence number of the i^{th} data subset, a routing tag field identifying the original user data set, and a length indicator field indicating the length of the i^{th} data subset.

9. The apparatus of claim 8, wherein the AAL packet header further includes a C-FLAG field to indicate whether the i^{th} data subset represents the N^{th} data subset of the restored original user data set.

11. A method for transmitting asynchronous transfer mode (ATM) adaptation layer-2 (AAL2) type ATM cells (AAL2 cells), comprising:

generating N AAL packets by adding an AAL packet header to an i^{th} data subset of an original user data set, the AAL packet header including a sequence number of the i^{th} data subset, a routing tag field identifying the original user data set, a length indicator field indicating a length of the i^{th} data subset, and a C-FLAG field indicating whether the i^{th} data subset

represents an N^{th} data subset of the original user data set, the generating being performed in an AAL transmitter residing in a channel card, the channel card further including an AAL receiver and a CPU;

generating one or more AAL cells by multiplexing the generated N AAL packets in the AAL transmitter of the channel card;

receiving the original user data set at an AAL receiver;

restoring the received original user data set by demultiplexing the N AAL packets included in the AAL cells, the restoring being performed by the AAL receiver residing in an AAL2 processor;

receiving the restored original user data set at an AAL2 transmitter;

generating M common part sublayer (CPS) packets by adding a CPS packet header to a j^{th} data subset of the restored original user data set by the AAL2 transmitter residing in the AAL2 processor;

generating one or more of the AAL2 cells by multiplexing the M CPS packets by the AAL2 transmitter residing in the AAL2 processor; and

transmitting the AAL2 cells to a receiving system through a connection line, wherein

i, j, N, and M are positive integers, $1 \leq i \leq N$, and $1 \leq j \leq M$.

15. The method of claim 11, wherein each of the one or more AAL cells includes an ATM header and a Start of Packet field, which indicates a starting location of an i^{th} AAL packet.

16. A method of receiving asynchronous transfer mode (ATM) adaptation layer 2 (AAL2) type ATM cells (AAL2 cells), comprising:

receiving one or more AAL2 cells containing common part sublayer (CPS) packets corresponding to an original user data set , the receiving being performed in an AAL2 receiver residing in an AAL2 processor;

restoring the original user data set by demultiplexing the CPS packets by the receiver in the AAL2 processor;

receiving the restored original user data set at an AAL transmitter;

generating N AAL packets by adding an AAL packet header to an i^{th} data subset of the restored original user data set, the AAL packet header including a sequence number of the i^{th} data subset, a routing tag field identifying the original user data set, a length indicator field indicating a length of the i^{th} data subset, and a C-FLAG field indicating whether the i^{th} data subset represents the N^{th} data subset of the restored original user data set, the generating being performed by the AAL transmitter residing in the AAL2 processor;

generating one or more AAL cells by multiplexing the N AAL packets by the AAL transmitter residing in the AAL2 processor;

receiving the one or more AAL cells at an AAL receiver; and

restoring the original user data set by demultiplexing the N AAL packets included in the one or more AAL cells, the restoring being performed by the AAL receiver residing in a selector, the selector further including a second AAL transmitter and a CPU,

wherein

i and N are positive integers and $1 \leq i \leq N$.

20. The method of claim 16, wherein each of the one or more AAL cells includes an ATM header and a Start of Packet field, which indicates a starting location of an i^{th} AAL packet.